THE 1973 STANFORD ACHIEVEMENT TEST SERIES AS ADAPTED FOR USE BY THE VISUALLY HANDICAPPED

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The adaptation and use of formal tests with the blind is not a new educational innovation. Use of such tests has been common practice for over half a century. Hayes (1941a) reported that the first adaptation for the blind was of an intelligence test and that this was undertaken in 1914 by R. B. Irwin and H. H. Goddard. Three years later, in 1917, he himself started using achievement tests with the blind. The first achievement test published in braille was a simple reading test published in 1918 at the Overbrook School in Pennsylvania (Hayes, 1948). By 1923 the American Printing House for the Blind (APH) was publishing 18 tests; each in three codes: New York Point, American Braille, and Revised Braille which was grade 1 1/2 (APH, 1923). The auxiliary material required for the administration of these 18 tests was compiled in a manual by Hayes (1921) and sold separately. It was 34 years later, in 1957, that the first large type test was produced at the Printing House (APH, 1957).

Adaptation of available ink-print tests is the most efficient and economical method of providing such measures for the visually handicapped. All the effort and expense of identification of test specifications, item writing and review, item analysis, and test standardization

are borne by the commercial ink-print developers and publishers. Additionally, development of original tests for use with the visually handicapped population is impractical because of the small number of subjects available for test refinement and standardization. As of 1 January 1973, there were only 24,195 legally blind students enrolled in other than college programs throughout the United States and its provinces.

Previous Editions of the Stanford Achievement Test

At the same time that embossed tests were beginning to appear, 1923, the original series of Stanford Achievement Tests was published by the World Book Company. This series included Forms A and B, of which, during the 1926-27 school year, three of the eight tests of the series were published by APH. Reflecting the times, the Primary Examination of this series was published in grade 1 braille and the Advanced Examination in grade 1 1/2 braille (APH, 1927). The directions for administering the reading and spelling tests of this series were published separately by Maxfield (1927).

In 1929 an extensive revision of the original forms of the Stanford Achievement Test was published by World Book. The new series included five forms; V, W, X, Y, and Z, and was called the "New Stanford Achievement Test." During the 1933-34 school year Dr. Kathryn E. Maxfield tried out an oral administration of some of these tests at the Perkins Institute in Massachusetts. This method proved too demanding of both tester and testee so Perkins published these tests in braille, grade 1 1/2, for their own use and for sale to other schools (Hayes, 1937).

Subsequently, the plates were presented to APH and by 1938 the tests were readily accessible to schools through the Printing House (APH, 1938). The directions for administering these tests were adapted by Samuel P. Hayes. Time limits established for the braille tests were three times greater than those stipulated for the ink-print edition in accordance with findings of a study by Caldwell (1929) in which a reading rate ratio of 3/1 for braille to sighted readers was found in use of an earlier form of the test.

After evaluating the "New Stanford Achievement Test," Hayes proposed use of the regular norms for all tests within the series except the arithmetic computation test for which he found use of the seeing norms at the next lower grade level more appropriate (Hayes, 1937). Hayes (1941a) reported, "In schools in which the children have been properly classified the curves based upon grade averages have shown the blind to be just about at the seeing levels, thus proving the possibility of normal educational progress by the blind and the feasibility of testing their progress with standard tools of measurement [p. 45]." Subsequently, Hayes studied this series of tests extensively (Hayes, 1941b) after which he reported the series seemed "admirably suited for use in schools for the blind [p. 10]," had high reliability, and had attested validity.

In 1940 World Book Company brought forth five entirely new forms; D, E, F, G, and H, of their Stanford Achievement Test. These tests were adapted for braille by Hayes and the series published by APH in grade 1 1/2 braille between the years of 1941 and 1945. The directions for administering this series were also adapted by Hayes (1941b). In this series the time allowed for braille test administration was reduced from the 3/1 ratio previously used to 2.5/1 times that allowed for administration of the regular ink-print edition.

The fourth series of the Stanford Achievement Test series; Forms J, K, L, M, and N, was released by World Book in 1953 and by APH between 1955 and 1960. This series was the first to be published in large type by APH (the Primary Battery was printed in 21-point type, the Elementary Battery in 18-point type, and the Intermediate and Advanced Batteries in 17-point type) and was the first of the series in which the braille tests were produced in grade 2 braille. It was also with this series that APH assumed responsibility for adapting the tests for braille and for adapting the directions for administering them accordingly. Administration times for the large type tests were expanded by a ratio of 1.5/1 and for the braille tests expanded by a ratio of 2.5/1.

The next series of the Stanford Achievement Test; Forms W, X, and Y, was published by Harcourt, Brace, and World in 1964. Forms X and Y of this series were prepared in braille, grade 2, and large type, 18-point, by APH and released in 1964 and 1965. Two major changes occurred with the adaptation of this series. The first concerned norms for the braille tests. In adapting tests for braille transliteration, it is often necessary to omit some items (e.g., questions requiring use of a cartoon) and, consequently, the norms provided with the regular ink-print edition are no longer appropriate for use with the braille edition as the two editions are no longer identical in content. With this series, for the first time, norms were provided for the braille edition that were specific to it. This was done by computing norms for the braille edition of Form X, the first Form released, from the original norming data but reflecting only those items that actually appeared in the braille tests. Form W was then equated to Form X as had

been done with the ink-print edition. The other major change occurring with this series regarded timing. Although time limits were suggested as an administrative convenience reflecting the 1.5/1 and the 2.5/1 ratios used with the J series for large type and braille test administration, respectively, it was suggested that these tests be given with no time limits imposed. The tests comprising this series are power tests rather than speed tests. Consequently, the use of time limits is not necessary nor even desirable in the case of the visually handicapped. Those time limits suggested for use with the ink-print edition were deliberately generous in order to enable practically all pupils to attempt each item within the tests. The Educational Research Department of APH was responsible for the adaptation of these tests and their directions for administration and; in collaboration with Harcourt, Brace, and World, the computation of norms for those braille tests that differed from their ink-print counterparts.

The 1973 Stanford Achievement Test Series

During the fall of 1973 Harcourt Brace Jovanovich brought out the first form, Form A, of their latest edition of the Stanford Achievement Test series. The second form, Form B, of this series was scheduled for release early in 1974. This 1973 series is an entirely new and expanded edition of the Stanford series and is comprised of both the Stanford Achievement Test and its high school extension the Stanford Test of Academic Skills (TASK). Eight battery levels within this series provide for measurement from the first grade through the first year in college. These batteries and their grade level for use are:

*Primary Level I..... Grades 1.5-2.4

Primary Level II..... Grades 2.5-3.4

Primary Level III..... Grades 3.5-4.4

Intermediate Level I..... Grades 4.5-5.4

Intermediate Level II..... Grades 5.5-6.9

Advanced..... Grades 7.0-9.5

TASK Level I..... Grades 9-10

TASK Level II..... Grades 11-12

*TASK Level II..... College Edition: Grade 13

The 1973 series will also include an abbreviated form, Form C*, designed for use in special large programs. It will contain only reading and mathematics tests.

With only three exceptions, the tests included in the Primary Level II Battery through the Advanced Battery are: Vocabulary, Reading Comprehension, Word Study Skills, Mathematics Concepts, Mathematics Computation, Mathematics Application, Spelling, Language, Social Science, Science, and Listening Comprehension. The three exceptions are that the Language test is omitted from the Primary Level II Battery and the Word Study Skills and Listening Comprehension tests are not included in the Advanced Battery. The TASK batteries include three tests. These are Reading Comprehension, Mathematics Concepts, and Language. All tests in the series (Stanford Achievement and TASK) are of the multiple choice type.

Norms accompanying the ink-print edition include grade equivalents, scaled scores, percentile ranks, and stanines for the beginning and end of year at all grade levels. Harcourt Brace Jovanovich (1973) reported that 275,000 pupils drawn from 109 school systems in 43 states participated in their standardization program for the 1973 Stanford

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*Not to be produced in braille and/or large type.

Achievement Test. "The standardization samples were selected to represent the national population in terms of geographic region, size of city, socioeconomic status, and public school and non-public schools [p. 9]."

The rationale and purpose for developing a new series of the Stanford Achievement Test (Harcourt Brace Jovanovich, 1973) was thusly stated:

As with each of the prior revisions, the decision to produce a new edition of Stanford Achievement Test, superseding the previous edition, rested primarily upon two considerations: 1) the significant changes that had occurred in the elementary school curriculum in the intervening years, and 2) the need for updating the norms. Periodic revisions of achievement tests are a generally accepted practice, but rapid curriculum changes over the past ten years made it essential to prepare a new edition within a shorter interval than had previously been the case [p. 7].

Test Adaptation

In order for tests to be used by the visually handicapped, it is generally necessary to adapt them; often in several ways (Nolan, 1962). With a series such as the 1973 Stanford series a number of such adaptations were required. First, the tests within Forms A and B of the series, of which there are 130, had to be reviewed to determine which tests and items within tests were feasible for inclusion in the braille and large type editions. At this time it became apparent that the Primary Level I Battery would have to be omitted. The reasons for this were: (1) that many young visually handicapped children would not be able to perform adequately the necessary operations, (2) that most visually handicapped

children at the grade levels for which this battery was designed are not able to read as well as their sighted peers and, consequently, would be at a disadvantage taking any standardized test requiring reading, and (3) because many of the tests in this battery are highly pictorial in content, it would not be possible to produce them in braille and, even if enlarged for a large type edition, would be of dubious legibility. During this review it also became apparent that Part A of the Reading Comprehension Test and the Social Science and Science tests of the Primary Level II Battery would have to be omitted from the braille edition because they too were highly pictorial in content. During the initial review, specific items from other tests for which braille reproduction would be impossible were also identified. Most of these items occurred in Social Science and Science tests and involved either maps or other forms of graphics that were too complex for tactual interpretation. A few such items were also found in the mathematics tests.

A listing of items to be omitted from the braille tests was sent to Harcourt Brace Jovanovich with whom APH had contracted for recomputation of norms for all braille tests differing from their ink-print counterparts. The norms to be provided for these braille tests were to be computed from data used for the standardization of the ink-print tests; however, would be computed for just those items actually appearing in the braille edition. As no items were deleted from the large type edition, the regular norms are appropriate for use with these tests.

The next task in the adaptation of these tests was the editing of them for braille and large type reproduction. This included modifying the directions appearing in the test booklets and changing the format.

With the braille tests the directions were changed to instruct students taking the Primary Level II tests to mark through their answer choices while for all other levels an answer sheet option was offered with students being instructed to either mark the letter by the answer of their choice in their test booklets or to mark the letter of their answer on their answer sheets. All answer choices, except in the Primary Level II tests, were edited to be preceded by letters a, b, c, d, and e, so that a standard answer sheet could be used with all. Items were renumbered in tests where items were omitted and longer tests, in terms of time needed for administration, were split into two parts so that the parts could be administered at separate sessions. The instructions and samples were repeated before each part where a test was split. As questions within tests were arranged to become progressively more difficult, where it was necessary to split a test, this was done on a more or less odd number even number basis so that the two parts would be of similar difficulty. Naturally, where sets of questions went together (e.g., three questions requiring use of the same table) these were retained as sets. Each part in split tests was renumbered from one. The format used for the braille tests was that answer choices were listed vertically under the questions unless they were short enough to be contained on one braille line with no more than one answer choice extended over to a second line.

Editing for large type reproduction was not as extensive as for braille reproduction. The directions were modified to instruct students to mark the letter by the answer of their choice, rather than marking circles off to the side as called for in the ink-print edition,

or, in the case of the Primary Level II tests, instructing students to mark through the answers of their choice. No answer sheet option was offered with the large type tests as the consensus of persons knowledgeable in the administration of tests to the blind, who were queried on this matter, was that partially sighted students who use large type would not be able to use answer sheets with enough facility to warrant such an option being offered. The format of the tests was, generally, that of having the answer choices listed vertically (i.e., one per line) below the questions. It was not necessary to split any of the tests in the large type edition nor drop any questions from any of the tests.

As with the previous editions of the Stanford Achievement Test, the tests comprising the new series are power tests rather than speed tests. Consequently, it is recommended that the adapted tests be administered without time limits. A test advisory group that met at the Printing House noted that with the new series this fact should be emphasized in the directions for administration. However, the group acknowledged that time limits would have to be suggested for use in situations where it was absolutely necessary to impose them. Therefore, such time limits were computed expanding the administration time by the same 2.5/1 and 1.5/1 ratios for braille and large type, respectively, used with the two preceding Stanford Achievement Test series. Using these times as a basis, proposed testing schedules were worked out for administering all tests within a battery keeping overall time limits similar to those proposed for administration of the ink-print edition at the same level. Because of the greater amount of time required, more sessions will be required for administration of the

braille edition of the Stanford Achievement Test than for the large type edition, and more time for the large type edition than for the ink-print edition. The same number of sessions will be required for administration of all three editions of TASK; however, of necessity, those for the adapted tests will be longer. As TASK is for use with students who are in grades 9-12, it was felt that these students could work for longer periods of time without being unduly fatigued. Rest periods are included in all longer testing sessions.

The final step in adapting the series for use by the blind was to revamp the manuals accompanying the tests. Twelve such manuals were involved; one each for the braille and large type editions for each of the five levels of the Stanford Achievement Tests and another for the TASK batteries. These manuals include sections on general directions for administering that are specific to the visually handicapped, the previously mentioned proposed schedule for administering, detailed directions for administering, directions for scoring, lists of correct responses, and, for those braille tests in the Stanford Achievement batteries differing from their ink-print counterparts, norms and accompanying statistical data. For all other tests, those from which it was not necessary to omit items, the norms and statistical data published by Harcourt Brace Jovanovich are appropriate for use with the adapted tests. Several options of administration, as suggested by the test advisory group, are offered in the detailed directions for administering. First, specific directions are given for administering the tests either with or without time limits, with the latter always being given preference by being presented first. Second, an option is offered for administration of the longer braille tests, those split and

others, in either one or two test sessions. This was done to accommodate for the wide disparity in rate at which braille students work. Often these tests are administered individually and, with this option, an entire longer test can be given to a student who works rapidly within one test session of reasonable length. Another option offered with all braille tests, other than those from the Primary Level II batteries, is use of an answer sheet. These options were offered in order to provide for maximum flexibility in test administration so that the procedure most appropriate for an individual situation can be selected for use. The examiner should always decide in advance from among the options offered the procedure most suitable for his specific situation.

Test Administration

There are several things that are of utmost importance to be aware of in administering the 1973 Stanford Achievement Test series. Of prime importance is that all parts of a test must be given. Parts are not equivalent and a total score may not be prorated from partial information. Another extremely important fact is that braille and large type tests cannot be administered in the same test session nor either of them with the regular ink-print edition. There are several reasons why each edition must be administered separately. First, the time required varies between students using the different editions; second, the test instructions and the Teacher's Detailed Directions for Administering the different editions are not identical; and third, the teacher-dictated tests in the braille edition often vary from those appearing in the other editions.

Oral test administration is an acceptable alternative for use in certain situations where a student either cannot read (e.g., has become recently blinded and has not learned braille) or is physically handicapped to an extent making it impossible or impractical to perform the operations required for taking a paper and pencil test. Although an acceptable alternative, it must be understood that oral administration may result in slightly inflating the scores (Davis & Nolan, 1961). The reason for this is that it relieves the testee of the reading task inherent in taking a written test.

Examiners disagree over the advisability of using answer sheets with students who read braille. Some feel that they should not be used because of possible marking errors and the additional time required for place finding on the answer sheet. Other examiners feel answer sheets can be used quite satisfactorily. Certainly all examiners should be aware of the possible problems inherent in their use.

Where a number of students are to be tested together, it will save time for the majority if any extremely slow student is tested separately. Regardless of whether the tests are administered with or without time limits, if a very slow student is tested with the others, the majority will finish considerably before him.

Test Use and Availability

The 1973 Stanford Achievement Test series holds promise of being the most useful to date. The test content and range have been expanded and the items meticulously selected to accurately reflect what is actually being taught in schools today (Harcourt Brace Jovanovich, 1973). The tests may be used to determine where a student stands in regards to students at

his same grade level throughout the nation and/or through use of ipsative norms, as a measure of an individual student's (or group's) growth (e.g., whether growth has advanced more than, the same as, or less than that which would be expected in x number of months regardless of the initial level).

Braille and large type editions of Forms A and B of the new Stanford series will be available for use during the 1974-75 school year from APH. In both editions all tests of a given level for a specific form will be bound together, generally in two volumes. This will provide for greater convenience in use and distribution. This series will serve to fill the immediate and serious need for an updated series of general achievement tests.

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